



DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline: 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 0
04/02/07

Please see instructions on page 3 before filling out the form.

IDENTIFICATION			
Company Name: North Idaho Energy Logs		Facility Name: Same	Facility ID No.: 021-00015
Brief Project Description: Modify rotary drum dryer heat source and increase throughput.			
CYCLONE SEPARATOR INFORMATION			
Equipment Description			
Manufacturer:	Model Number:		
Dimensions Give dimensions of cyclone. (See sample diagram above.) 1. B: 16 in. 5. Z: 192 in. 2. H: 38 in. 6. D: 126 in. 3. S: 46 in. 7. A: 52 in. 4. L: 84 in. 8. J: 16 in.	Particulate Size Distribution Data		
	Micron range	Particle size distribution weight %	Manufacturer's guaranteed removal efficiency for each micron range
	0.5-1.0		Not available
	1.0-5.0		
	5-10		
	10-20		
	Over 20		
	Type of Cyclone <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry		
Type of Cyclone Unit <input checked="" type="checkbox"/> Single <input type="checkbox"/> Quadruple <input type="checkbox"/> Dual <input type="checkbox"/> Multiclone			
Blower Blower horsepower: 40 hp Design flow rate: 8,850 scfm Draft: <input checked="" type="checkbox"/> Forced <input type="checkbox"/> Induced			
Design Criteria	Cyclone configuration: <input checked="" type="checkbox"/> Positive pressure <input type="checkbox"/> Negative pressure		
Pre-Treatment Device	<input type="checkbox"/> Cyclone <input type="checkbox"/> Knock-out chamber <input type="checkbox"/> Precooler <input type="checkbox"/> None <input type="checkbox"/> Preheater		
Post-Treatment Device	<input type="checkbox"/> Baghouse/Cartridge <input type="checkbox"/> HEPA <input type="checkbox"/> Other:		

Process Stream Characteristics	
Brief Description of Process	Overfeed material is collected from the production process via screw conveyors and fed to a hammermill which discharges into the inlet to Cyclone #3. The material collected in Cyclone #3 is discharged into the screw conveyor which returns collected material to the production process.
Flow Data	<p>Gas stream temperature: 70 degrees F</p> <p>Moisture content: grams of water/cubic feet (ft³) of dry air</p> <p><u>Pressure drop range</u></p> <p>High: 4.0 in. H₂O Low: 3.0 in. H₂O</p> <p>Dew point temperature of process stream: degrees F</p> <p>Inlet flow rate: 8,850 ACFM</p>
Dust Collection Device	<p><input type="checkbox"/> Pneumatic conveyor <input type="checkbox"/> Rotary airlock valves <input checked="" type="checkbox"/> Screw conveyors <input type="checkbox"/> Closed container</p> <p><input type="checkbox"/> Double dump <input type="checkbox"/> Drag conveyor</p> <p><input type="checkbox"/> Manual discharge device: <input type="checkbox"/> Slide gate OR <input type="checkbox"/> Hinged doors or drawers</p>
Operating Schedule	<p>Normal: 20 hours/day 5 days/week 50 weeks/year</p> <p>Maximum: 24 hours/day 7 days/week 52 weeks/year</p>



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Revision 3
04/02/07

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IDENTIFICATION										
Company Name: North Idaho Energy Logs				Facility Name: Same				Facility ID No.: 021-00015		
Brief Project Description:										
IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
Baghouse	BH1	BH1	BH1	Clark	40-20	Reverse Air	Clar-Tex Fabric	12" x 20'	20	5.2
							Clar-Tex Fabric	16" x 20'	20	5.2



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PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page before filling out the form.

IDENTIFICATION		
Company Name: North Idaho Energy Logs	Facility Name: Same	Facility ID No: 021-00015
Brief Project Description: Manufacturer of Structural Steel Storage Systems		
APPLICABILITY DETERMINATION		
Will this project be subject to 1990 CAA Section 112(g)? (Case-by-Case MACT)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES* * If YES then applicant must submit an application for a case-by-case MACT determination [IAC 567 22-1(3)"b" (8)]	
Will this project be subject to a New Source Performance Standard? (40 CFR part 60)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES* *If YES please identify sub-part:	
Will this project be subject to a MACT (<u>M</u> aximum <u>A</u> chievable <u>C</u> ontrol <u>T</u> echnology) regulation? (40 CFR part 63)	<input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> YES* *If YES please identify sub-part:	
THIS ONLY APPLIES IF THE PROJECT EMITS A HAZARDOUS AIR POLLUTANT		
Will this project be subject to a NESHAP (<u>N</u> ational <u>E</u> mission <u>S</u> tandards for <u>H</u> azardous <u>A</u> ir <u>P</u> ollutants) regulation? (40 CFR part 61)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES* *If YES please identify sub-part:	
Will this project be subject to PSD (<u>P</u> revention of <u>S</u> ignificant <u>D</u> eterioration)? (40 CFR section 52.21)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	
Was netting done for this project to avoid PSD?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES* *If YES please attach netting calculations	
If you are unsure how to answer any of these questions call the Air Permit Hotline at 877-5PERMIT		



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Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name: North Idaho Energy Logs

Facility Name: Same

Facility ID No.: 021-00015

Brief Project Description: Modify rotary drum dryer heat source and increase throughput

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	Averaging Period	Significant Impact Analysis Results (µg/m3)	Significant Contribution Level (µg/m3)	Full Impact Analysis Results (µg/m3)	Background Concentration (µg/m3)	Total Ambient Impact (µg/m3)	NAAQS (µg/m3)	Percent of NAAQS
PM ₁₀	24-hour		5	63.30	73	136.30	150	90.9%
	Annual		1	17.10	26	43.10	50	86.2%
SO ₂	3-hr		25	6.30	34	40.30	1300	3.1%
	24-hr		5	2.80	26	28.80	365	7.9%
	Annual		1	0.24	8	8.24	80	10.3%
NO ₂	Annual		1	4.67	17	21.67	100	21.7%
CO	1-hr		2000	205.20	3,600	3,805.20	40000	9.5%
	8-hr		500	109.40	2,300	2,409.40	10000	24.1%

[illegible]

[illegible]



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Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	North Idaho Energy Logs
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Facility Name:	Same
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Facility ID No.:	021-00015
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Brief Project Description:	Modify rotary drum dryer heat source and increase throughput
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BUILDING AND STRUCTURE INFORMATION

[illegible]

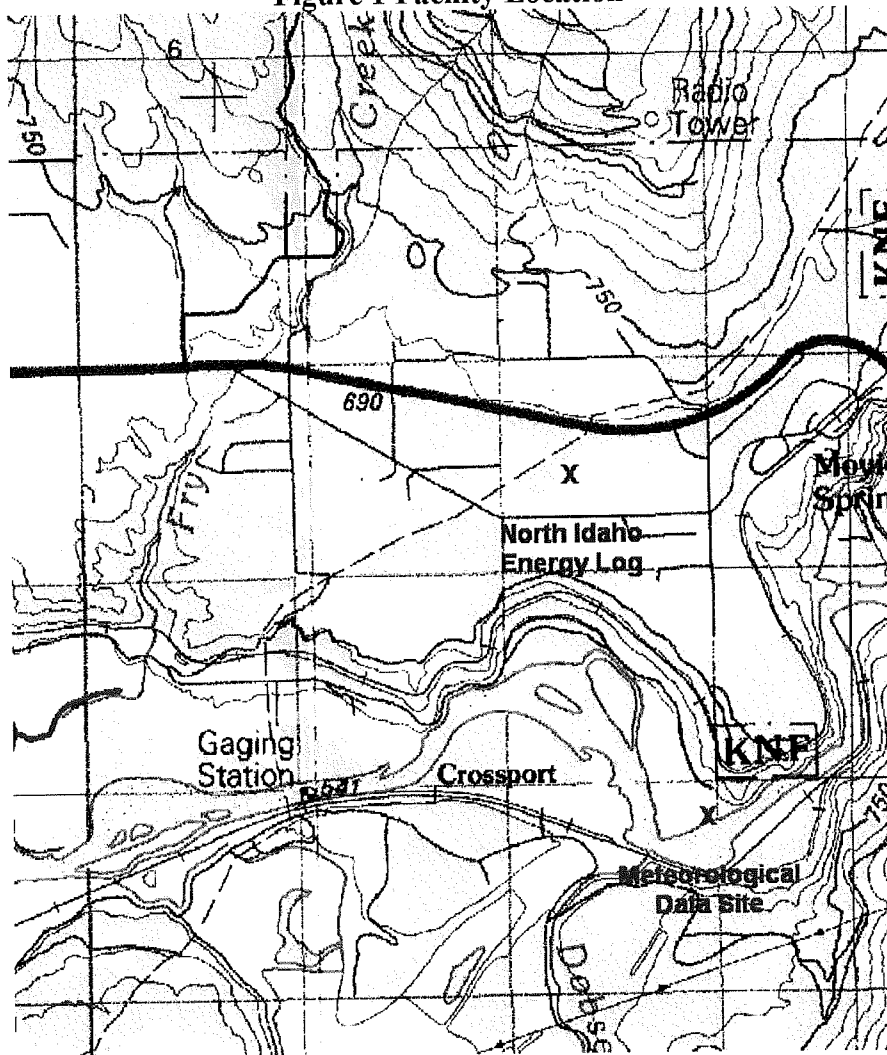
APPENDIX D
MODELING ANALYSIS

Air Quality Modeling Report North Idaho Energy Logs

1.0 Purpose

This report describes the analysis estimating impacts of facility criteria pollutant emissions and the increase in Toxic Air Pollutants (TAPs) emissions on ambient air quality impact as a result of the proposed action. It shows that facility impacts do not exceed any applicable ambient air quality impact limits. North Idaho Energy Logs (NIEL) is located just west of the town of Moyie Springs in Northern Idaho. NIEL has submitted a permit application to modify the heat source for the rotary drum dryer from natural gas to wood. The modification also requests to increase the facility production throughput from 5 tons/hr to 8 tons/hr. The baghouse and cyclone #3 are existing emission units with no changes. However, the existing dryer cyclone is being replaced to account for the increased production rates. The facility property boundary will serve as the ambient air quality boundary. A six foot high fence encircles the entire property boundary. Figure 1 shows the location of the NIEL facility.

Figure 1 Facility Location



Analyses have been prepared for four criteria pollutants emitted above IDEQ modeling thresholds to document that impacts from the facility's emissions of those pollutants do not cause or significantly contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) standards. Analyses were also prepared for all TAPs with increase in potential emissions over IDAPA 58.01.01 Sections 585 or 586 emission level (EL) thresholds to demonstrate that the increase of emissions as a result of the proposed action would not lead to ambient air quality impacts above IDAPA 58.01.01 Section 585 Acceptable Ambient Concentrations (AAC) or Section 586 Acceptable Ambient Concentrations for Carcinogens (AACC) impact limits. Air dispersion modeling was conducted in accordance with EPA's *Guideline on Air Quality Models* and IDEQ's *Air Quality Modeling Guideline*, consistent with the approved modeling protocol.

2.0 Model Description / Justification

The model chosen was AERMOD, the United States Environmental Protection Agency (USEPA)-approved dispersion model. AERMOD, one of the most frequently used regulatory dispersion models in the United States since it replaced ISCST3 in EPA guidance, is the most appropriate of the EPA-approved models given the site's physical characteristics and the variety of facility emission sources. The sophisticated Prime building downwash algorithm was conservatively applied for the facility. The model was applied as recommended in EPA's *Guideline on Air Quality Models* (2001), utilizing that document's regulatory default options and the simple and complex terrain options and other input settings consistent with State of Idaho Air Quality Modeling Guideline. The modeling reported here is consistent with the modeling protocol approved by IDEQ.

3.0 Facility Emissions

As discussed in Section 1.0, increased throughput proposed for the dryer results in an increase in emissions from previously permitted levels. Maximum hourly emission rates were calculated for all emission sources at the facility consistent with the PTE calculations in this application's emission inventory. The small amount of fugitive PM-10 emissions from process feed material which consists of moist wood chips were also included in the modeling analysis. For all impact analyses for all averaging periods less than one year, all facility emission sources were conservatively assumed to operate continuously. Those maximum short term emission rates were conservatively applied for all pollutants (criteria and TAP) emitted above IDEQ modeling thresholds, for all averaging periods for which ambient air quality impact limits exist. Annual average impact analyses included emission rates consistent with or higher than the maximum PTE documented in the facility emission inventory.

4.0 Model Source Data

Sources included in the modeling include all emission sources documented in the emission inventory for all pollutants except VOCs and TAPs whose increase in emissions does not exceed IDAPA 58.01.01 Sections 585 and 586 emission limit thresholds. All point sources were depicted with actual stack data provided by the general contractor, H.J. Burns Company, designing the equipment for the facility. H.J Burns will also be supplying and installing the

equipment at the NIEL facility. IDEQ's modeling representative Darrin Mehr recommended on March 11, 2008, after reviewing information and specifications on the unit 40-20 Clarke's baghouse, that the facility baghouse could be modeled as a vertical release, with some diminishment of vertical velocity due to a baffle system atop the unit. In this analysis, the baghouse was very conservatively modeled with a stack diameter the full width of the top of the unit and an exhaust flow rate of 7,500 acfm, approximately half the flow rate documented in the equipment specifications. That resulted in a modeled exhaust flow rate of 1.17 feet per second, conservative for actual operations.

All pollutants emitted only from the dryer stack (NO_x, SO₂, CO, and all TAPs) were modeled as a normalized emission of 1 lb/hr using the pollutant identification DRYER. Actual predicted maximum impacts were calculated by multiplying the model predicted maximum impact for the appropriate averaging period by the proposed emission rate (in lbs/hr).

Four area sources are included in the analysis, representing stockpiles of process feed material which consists of moist wood chips. Dust generated by the transfer and screening of the wood chips and pellets is vented to the system dust collector baghouse.

Model point source parameters were provided by the engineers building the processes and installing the facility. Emission rates were calculated by JBR Environmental consistent with documentation in the application's emission inventory.

Table 1 shows the model source parameters for all model sources and all criteria pollutants modeled.

Table 1 Model Source Data

Source ID	Stack Release Type	Easting (X)	Northing (Y)	Base Elev	Stack Height	Temperature	Exit Velocity	Stack Diam	PMTEN	DRYER
POINT SOURCES		(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(lb/hr)
DRYRCYCL	DEFAULT	556964.63	5396363.5	690	61	120.0	15.19	5.5	11.31	1
CYCLONE3	DEFAULT	556949.81	5396363	690	22.1	100.0	50	3	0.94	0
BAGHOUSE	DEFAULT	556966.94	5396445	690	24.6	100.0	1.17	11.667	0.11	0

Source ID	Source Description	Easting (X)	Northing (Y)	Base Elev	Rel Ht	Easterly Length	Northerly Length	Angle from North	Vert Dim	PMTEN
AREA SOURCES		(m)	(m)	(m)	(ft)	(ft)	(ft)		(ft)	(lb/hr)
STRPIL1	storage pile SE	557000	5396285	690.9	4	40	200		4	0.018
STRPIL2	storage pile S	556910	5396285	690.1	4	200	60		4	0.022
STRPIL3	storage pile WSW	556870	5396285	690.1	4	60	550		4	0.041
STRPIL4	storage pile WNW	556903	5396349	690.1	4	40	250		4	0.019

Figure 2 shows the locations of the sources within the facility, along with the facility buildings. All model sources are identified in red. The property boundary is shown as a surrounding black line to the east and west. The innermost model receptors can be seen as dots along and beyond the property boundary. The entire figure is overlaid upon a UTM NAD 27 coordinate system grid.

Figure 2 Facility Buildings, and Public Access Limits

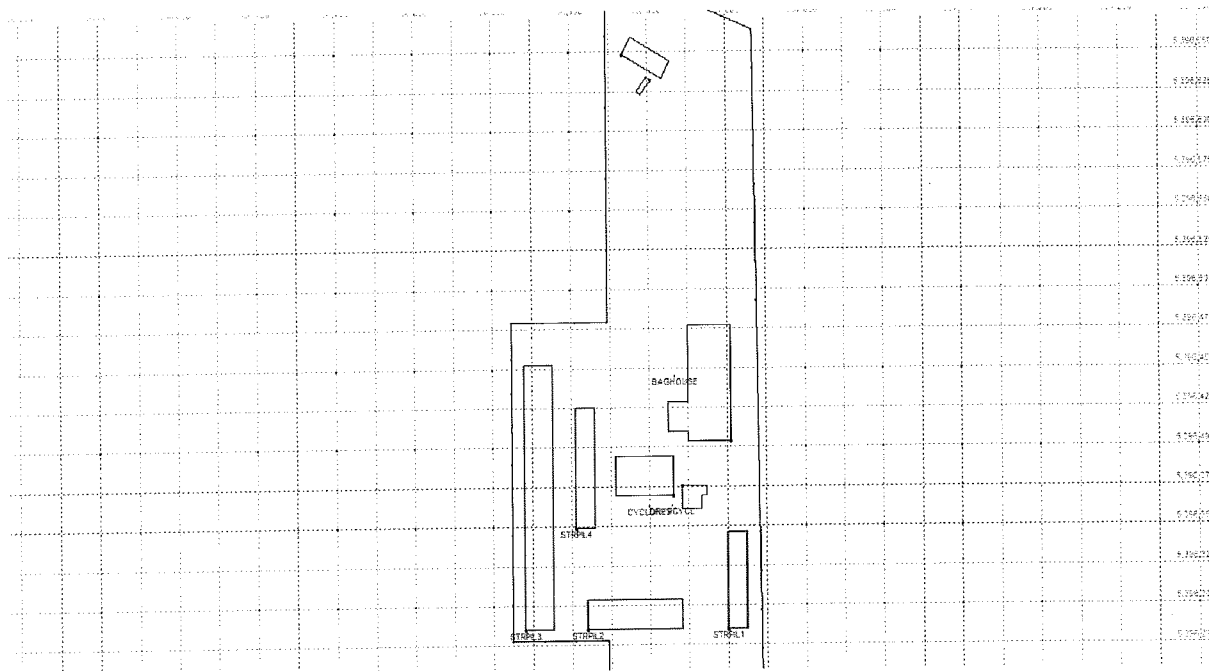
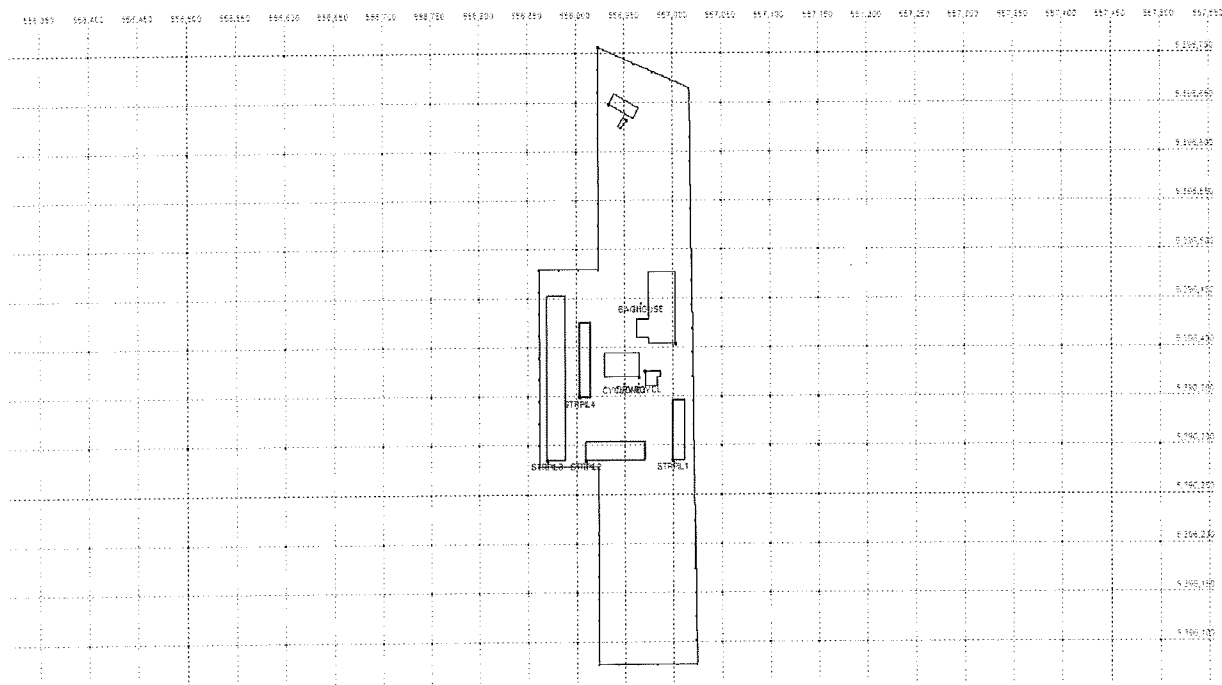


Figure 3 shows a more complete view of the facility, its property and ambient air boundary. Public access is discouraged inside the property boundary by 6 foot high fencing around the entire facility perimeter. Employees are trained to discourage or report unauthorized access. Dots on the figure represent the receptors nearest the public access limit. The entire map is overlaid upon a UTM NAD 27 coordinate grid system. Facility emission sources are again shown in red. The dots outside the facility boundary represent the nearest model receptors. A detailed scaled facility plot plan is also included in Appendix B.

Figure 3 Facility Emission Sources, Building, and Public Access Limits

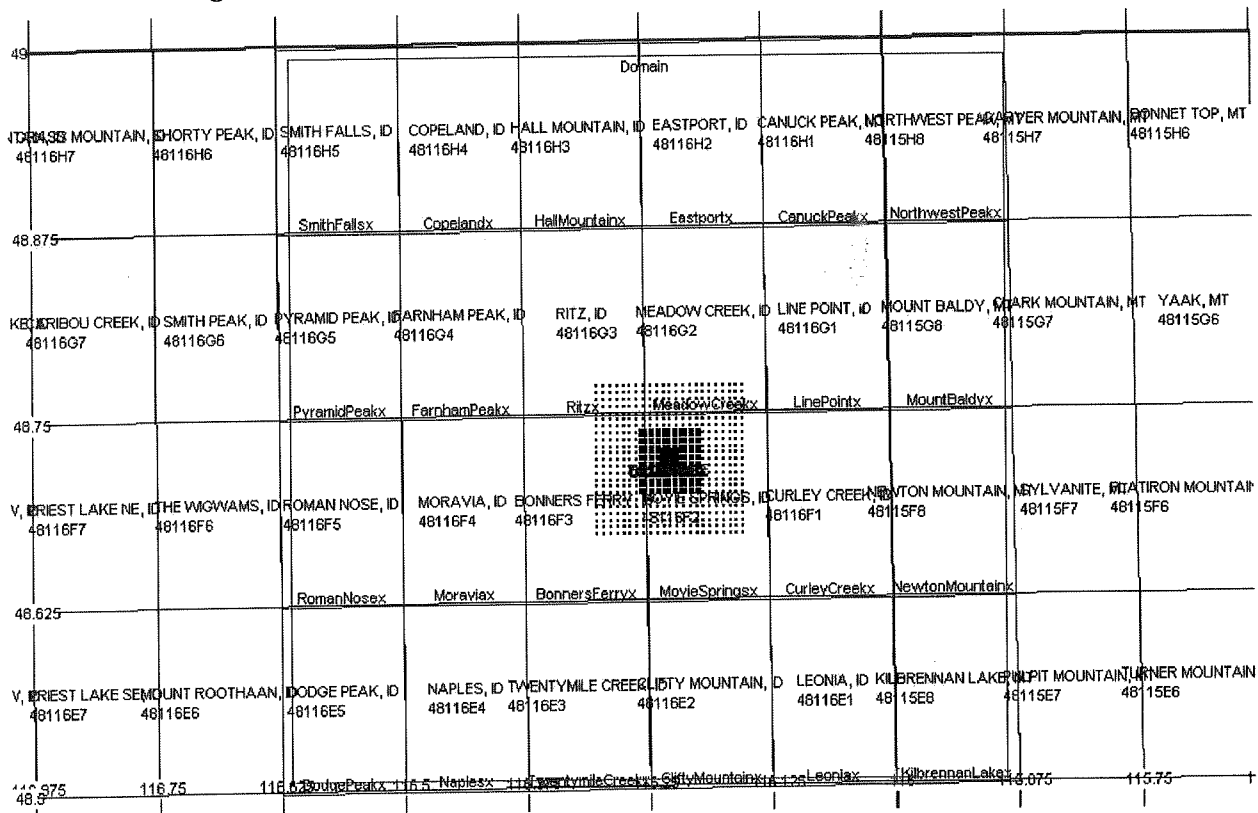


5.0 Model Domain, Mapping, and Receptor Network

The model receptor network used in this analysis includes 25 meter grid density around the property boundary, 50 meter grid density for at least the first 150 meters beyond, 100 meter grid density out to 500 meters, 250 meter grid density to 2000 meters, and 500 meter grid density to 5000 meters. As noted earlier, the facility property is enclosed by a six foot high fence around the entire facility.

The model domain was calculated by the BeeLine BEEST program to conservatively include the entire USGS quad for any quad that elevations meeting the AERMOD guidance requirements for inclusion based upon elevation, with slight chopping at the edges of the outer quads to ensure all points were on the DEM files. 24 USGS topo maps were included for this analysis. The AERMAP program was used to set elevations for all model buildings, source bases, and model receptors, and to process elevation and terrain data to be ready for the AERMOD analysis. AERMAP input and output files are provided to document the application. The innermost portions of the model receptor network can be seen in Figure 2 and 3. Figure 4 shows the remainder of the model receptor network, the model domain (outlined in green), and the corresponding USGS topographic map areas covered.

Figure 4 Outer Receptor Network, with Boundaries and Buildings



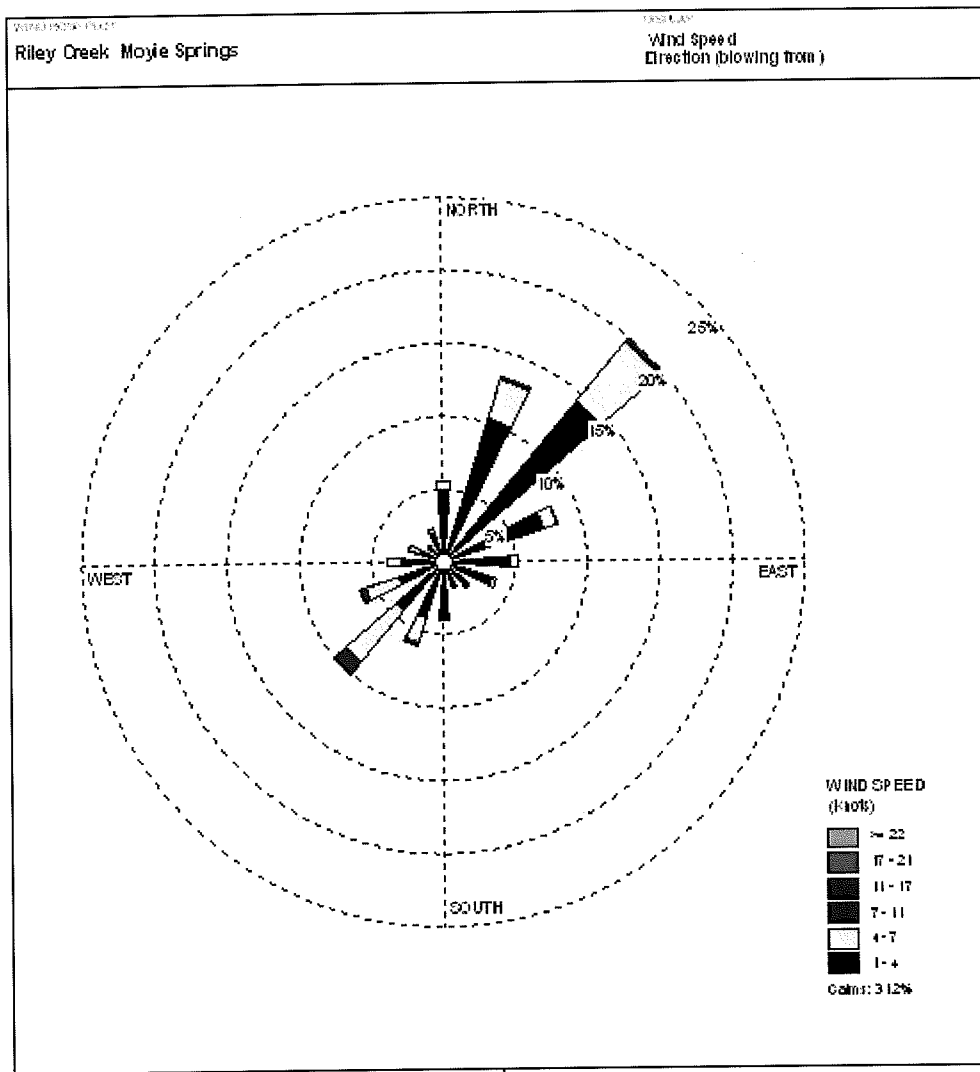
6.0 Elevation Data

All elevation heights used in this modeling analysis were calculated from USGS NAD 27 7.5-degree (30m or less horizontal resolution) DEM data using the Bee-Line BEEST preprocessing system and the AERMAP program. Consistency between building base elevations on all sides and observed roof heights was verified.

7.0 Meteorological Data

One year of onsite data from the Riley Creek Moyie Springs facility for December 2002-November, 2003, with upper air data from Spokane was employed. The meteorological file was provided by IDEQ in model-ready form, and recommended for use in these analyses. Therefore, the modeling file used site specific parameters (albedo, Bowen Ratio, surface roughness), from the original application because the raw data to rerun AERMOD was not available.

Figure 5 IDEQ Supplied Moyie Springs Met. Data Wind Rose



The Riley Creek wind rose shows predominant flow from the NE and SW, consistent with terrain forcing along the Kootenai River at the monitoring site (shown in Figure 1). As seen in Figure 1, the NIEL site features firm terrain blocks to the N, and flow following the river corridor E or ENE or W or WSW. The terrain just E of the NIEL site forces winds through a gap to or from the easterly or ENE direction. Therefore, the Riley airport wind data field was rotated 30 degree clockwise so that the prevailing wind are to and from the E or ENE, lining up with the valley and the gap in the terrain to the E / ENE that forces winds in the vicinity of the facility. This application of meteorological data files employs recommendations made by Kevin Schilling of IDEQ.

8.0 Land Use Classification

The model includes rural and urban algorithm options. These options affect the wind speed profile, dispersion rates, and mixing-height formula used in calculating ground-level pollutant concentrations. A protocol was developed by USEPA to classify an area as either rural or urban for dispersion modeling purposes. The classification is based on average heat flux, land use, or population density within a three-km radius from the plant site. Of these techniques, the USEPA has specified that land use is the most definitive criterion (USEPA, 1987). The urban/rural classification scheme based on land use is as follows:

The land use within the total area, A_0 , circumscribed by a 3-km circle about the source, is classified using the meteorological land use typing scheme proposed by Auer (1978). The classification scheme requires that more than 50% of the area, A_0 , be from the following land use types in order to be considered urban for dispersion modeling purposes: heavy industrial (I1); light-moderate industrial (I2); commercial (C1); single-family compact residential (R2); and multi-family compact residential (R3). Otherwise, the use of rural dispersion coefficients is appropriate.

The facility is located in a rural area surrounded by conifer forests and occasional open land with very sparse development. While the town of Moyie Springs takes up approximately 15% of the area in a 3 kilometer circle around the site to the east, and the Riley Creek facility to the south takes up approximately 5%, the vast majority of the three kilometer circle would include forested land with a few openings and some agricultural land. Man-made features affecting wind flow beyond those discussed would be minimal. Site reconnaissance showed that the area A_0 does not approach the 50% urban land use criteria necessary for use of urban dispersion coefficients. Rural dispersion coefficients were therefore used in the air quality dispersion modeling, as IDEQ used or recommended for all previous facility modeling analyses.

9.0 Background Concentrations

The description in section 1.8 above, supported by the map included in Figure 1, led IDEQ modeling protocol reviewers to recommend rural agricultural background concentrations, which were used for this analysis. Those values can be seen in Table 3 below.

10.0 Evaluation of Compliance with Standards

The ambient air quality impact limits applicable to this analysis for criteria pollutants are the National Ambient Air Quality Standards, and the IDAPA standards which match them. The maximum potential ambient concentration compared against the NAAQS for all averaging periods was the maximum model predicted impact at any receptor in the year modeled. All maximum impacts calculated from normalized dryer emissions conservatively use the maximum impacted predicted for each averaging period.

Table 2 shows the calculation of maximum criteria pollutant impacts from the normalized 1 lb/hr

impact modeling.

Table 2 Criteria Pollutant Impact Projections from Normalized Model Output

Pollutant	Emission Rate (lbs/hr)	Modeled Max Impact	Modeled Max Impact	Modeled Max Impact	Modeled Max Impact	Modeled Max Impact
		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)
		1 hr ave	3 hr ave	8 hr ave	24 hr ave	annual ave
Normalized	1	11.40128	8.36265	6.07898	3.79085	0.31784
SO ₂	0.75	-	6.2720	-	2.8431	0.2384
NO _x	14.7	-	-	-	-	4.6722
CO	18	205.2230	-	109.4216	-	-

For TAPs, the applicable standards are the IDAPA 585 AACs or the IDAPA 586 AACCs. That ambient limit applies to the maximum impact predicted at any receptor in any year for all averaging periods as a result of proposed increases in TAP emissions. Derivation of predicted maximum TAP impacts from normalized model results is documented on the TAP worksheet in the NIEL Model Source Data spreadsheet accompanying this submission.

**Table 3
Ambient Impact Limits
& Comparison of Predicted Impacts with Applicable Ambient Standards**

Pollutant	Averaging Period	Background Conc. ($\mu\text{g}/\text{m}^3$)	Modeled Worst Case Impact ($\mu\text{g}/\text{m}^3$)	Max Potential Ambient Conc. ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$) Or AAC, AACC for TAPs	Location Of Highest Model Impact	Pred. Amb. Conc as % of Ambient Standard
PM-10	24-hour	73	63.3	136.6	150	Property boundary	91.1%
	Annual	26	17.1	43.1	50	Property boundary	86.2%
SO ₂	3-hour	34	6.3	40.3	1300	Property boundary	3.1%
	24-hour	26	2.8	28.8	365	Property boundary	7.9%
	Annual	8	0.24	8.24	80	Property boundary	10.3%
NO _x	Annual	17	4.67	21.67	100	Property boundary	21.7%
CO	1-hour	3600	205.2	3805.2	40000	Property boundary	9.5%
	8-hour	2300	109.4	2409.4	10000	Property boundary	24.1%
Acrolein	24-hour	-	0.46	-	12.5	Property boundary	3.6%
Hydrogen Chloride	24-hour	-	2.16	-	375	Property boundary	0.6%
Methyl Isobutyl Ketone	24-hour	-	0.073	-	10250	Property boundary	<0.1%
Silver	24-hour	-	0.193	-	5	Property boundary	3.9%

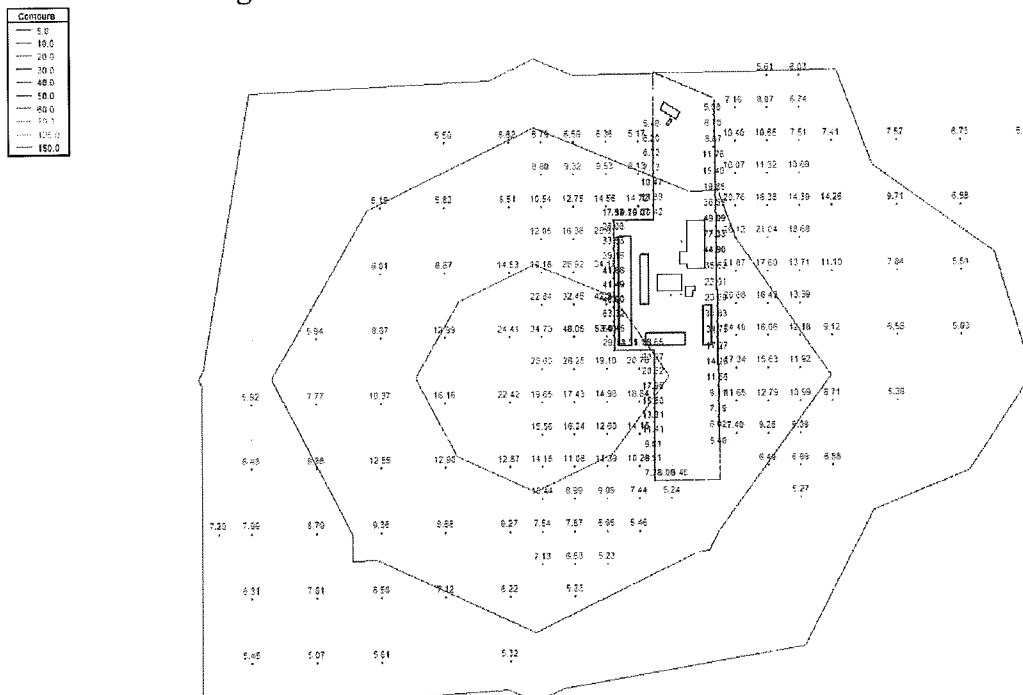
Acetaldehyde	Annual	-	0.033	-	0.45	Property boundary	7.3%
Arsenic	Annual	-	0.00021	-	2.3E-04	Property boundary	91.2%
Benzene	Annual	-	0.040	-	0.12	Property boundary	33.4%
Benzo(a)pyrene	Annual	-	2.48E-05	-	0.0003	Property boundary	8.3%
Beryllium	Annual	-	1.05E-05	-	0.0042	Property boundary	0.2%
Cadmium	Annual	-	3.91E-05	-	5.6E-04	Property boundary	7.0%
Carbon Tetrachloride	Annual	-	0.00043	-	0.067	Property boundary	0.6%
Chloroform	Annual	-	0.00027	-	0.043	Property boundary	0.6%
Chromium VI	Annual	-	3.34E-05	-	8.3E-05	Property boundary	40.2%
1,2 Dichloroethane	Annual	-	0.00028	-	0.038	Property boundary	0.7%
Dichloromethane	Annual	-	0.0028	-	0.24	Property boundary	1.2%
Formaldehyde	Annual	-	0.042	-	0.077	Property boundary	53.9%
Methylene Chloride	Annual	-	0.0016	-	0.24	Property boundary	0.7%
Nickel	Annual	-	3.2E-04	-	4.2E-03	Property boundary	7.5%
PAHs	Annual	-	2.8E-05	-	0.014	Property boundary	0.2%
2,3,7,8-Tetrachlorodibenzo-p-dioxin	Annual	-	8.2E-11	-	2.2E-08	Property boundary	0.4%

Maximum predicted impacts for all pollutants and averaging periods occurred at or very near the property and ambient air boundary. That was likely caused by building downwash.

Table 3 shows that predicted maximum ambient concentrations for criteria pollutants, and maximum impacts for increases in TAP emissions, are well below all applicable impact limits. Extended calculation of TAP impacts from the normalized DRYER modeling results and comparison with applicable impact limits can be seen in Attachment B, and in the Model Source Data spreadsheet in the zipped electronic files.

Figure 6 below shows the predicted highest annual average impacts from normalized 1 lb/hr emissions from the dryer cyclone. The maximum impacts are shown to be on the ambient air boundary. These model results were used to calculate annual average impacts for criteria pollutants and all IDAPA 586 TAPs.

Figure 7 Maximum Model Predicted 24- hour PM-10 impacts



11.0 Electronic Copies of the Modeling Files

Electronic copies of all input, output, and support modeling files necessary to duplicate the model results are provided on the accompanying zipped file: NIEL 041608 AQ Modeling Files.ZIP. Those files include:

NIEL 041608_pp.ext modeling files, where
pp= PM_TEN, or DRYER for the pollutant modeled
ext = DTA for AERMOD input files, and .LST for AERMOD output files

NIEL 041608.* provides the BPIP Prime input and output files

The IDEQ supplied Riley Creek Moyie Springs AERMET meteorological data file

NIEL Model Source Data 041608.xls spreadsheet

12.0 IDEQ MI Forms

The data for the IDEQ forms can be found:

- Model Source data is in Table 1, and also in the Model Source data spreadsheet
- Building data is in the BPIP input and output files

Model results are shown in Table 3

Attachment A

Modeling Protocol And Subsequent IDEQ Protocol Detail Exchanges



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 NORTH HILTON, BOISE, ID 83706 • (208) 373-0502

C. L. "BUTCH" OTTER, GOVERNOR
TONI HARDESTY, DIRECTOR

August 16, 2007

Chris Johnson
JBR Environmental Consultants, Inc.
Boise, Idaho

RE: Modeling Protocol for the North Idaho Energy Logs Facility Located near Moyie Springs, Idaho

Dear Mr. Johnson:

DEQ received your dispersion modeling protocol on August 7, 2007. The modeling protocol was submitted on behalf of North Idaho Energy Logs (NIEL). The modeling protocol proposes methods and data for use in the ambient impact analyses of a Permit to Construct application for a modification to the existing Moyie Springs facility, consisting of the use of wood as an alternative fuel for the dryer, replacement of the dryer cyclone, and an increase in facility production from 5 tons per hour (T/hr) to 8 T/hr.

The modeling protocol has been reviewed and DEQ has the following comments:

- Comment 1: The application should provide documentation and justification for all stack parameters used in the modeling analyses, clearly showing how stack gas temperatures, flow rates, and volume source dispersion parameters were estimated. Include calculations and assumptions.

The acceptable level of documentation/justification provided will depend on the following:

- 1) how close modeled concentrations are to applicable standards;
- 2) the contribution of the source to modeled concentrations;
- 3) whether the parameters are outside of values that are deemed as typical for the source type; and,
- 4) whether values used will tend to enhance plume rise, such as large exhaust flow rates and high exit temperatures.

In most instances, applicants should use typical parameters, not maximum temperatures and flow rates. For the situations where vendors have supplied exhaust parameters please include a copy of the documentation they have supplied to their client and indicate if the parameters are considered typical, maximum, minimum, etc., to better describe the type of values being used in the modeling analysis.

Other exhaust parameters that may have been modeled in a previous permitting project must still be substantiated in the permit application. The submitted application must be all-inclusive.

- Comment 2: Provide a complete, scaled facility plot plan that includes the locations of the exhaust releases for all emissions sources and all existing or proposed buildings with the permit application. Include any nearby buildings not on the facility property if they are located within the structure influence zone of any modeled emission source. All building dimensions must be included either in the plot plan or in a table. The ambient air boundary of the facility should be clearly depicted in the plot plan.
- Comment 3: DEQ determined the following default background concentrations for rural agricultural areas are most appropriate for the site location near Moyie Springs: PM_{10} 24-hr = $73 \mu\text{g}/\text{m}^3$; PM_{10} annual = $26 \mu\text{g}/\text{m}^3$; CO 1-hr = $3,600 \mu\text{g}/\text{m}^3$; CO 8-hr = $2,300 \mu\text{g}/\text{m}^3$; NO_2 annual = $17 \mu\text{g}/\text{m}^3$; SO_2 3-hr = $34 \mu\text{g}/\text{m}^3$; SO_2 24-hr = $26 \mu\text{g}/\text{m}^3$; SO_2 annual = $8 \mu\text{g}/\text{m}^3$; and, Pb quarterly = $0.03 \mu\text{g}/\text{m}^3$. These values are conservatively based upon aerial photographs of the facility and surrounding area that show what appears to be agricultural fields, two open pit aggregate areas within $\frac{1}{2}$ mile of NIEL with active sources located in them, and an active sawmill within one mile of NIEL.

Additional substantiation would be required to apply default ambient background concentrations for remote rural locations. Please provide any documentation you want DEQ to consider in a request to use remote rural background values in place of the rural agricultural background values for this project.

To ensure a complete and timely review of the final analysis, our modeling staff requests that electronic copies of all modeling input and output files (including BPIP, and AERMAP input and output files) are submitted with an analysis report.

DEQ's modeling staff considers the submitted dispersion modeling protocol, with resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Air Quality Modeling Guideline*, which is available on the Internet at http://www.deq.state.id.us/air/permits_forms/permitting/modeling_guideline.pdf, for further guidance.

If you have any further questions or comments, please contact me at (208) 373-0536.

Sincerely,

Darrin Mehr
Air Quality Analyst
Idaho Department of Environmental Quality

Copies of the Modeling Protocol for the Projec are included in the zipped modeling files.

There were three comments in IDEQ's Modeling protocol approval. Comment #1 involved documentation required for model source parameters. The emission inventory for all sources is well documented in this permit application. The exchange copied below documents project proponent's documentation of the baghouse exhaust to IDEQ, and IDEQ recommendations that were followed in modeling that low emission particulate only source. The stack data for all point sources is from specifications from the contractor that is the designing the equipment to be installed. The source parameters for the fugitive sources are conservative estimates based upon actual and planned onsite storage of products. The scaled plot plan requested in Comment # 2 is provided with this permit application. Comment #3 recommends background concentrations that were directly included in this analysis, as shown in Table 3.

From: Darrin.Mehr@deq.idaho.gov [mailto:Darrin.Mehr@deq.idaho.gov]
Sent: Tuesday, March 11, 2008 3:20 PM
To: cjohnson@jbrenv.com
Cc: marmer@jbrenv.com; Kevin.Schilling@deq.idaho.gov
Subject: RE: North Idaho Energy Logs, response to IDEQ modelign comments

Hi Chris,

If there is still some level of unobstructed vertical flow that this baghouse vent will have, the use of a 0.001 m/s exhaust flow rate could be a pretty conservative approach. You can use that assumption, but if the exhaust is vented vertically through the annular space, there is still some momentum buoyancy that can be taken into account. The circular cap with diameter parameter "C" doesn't block the entire top of the vent like a china cap.

DEQ generally favors conservative assumptions, but in this case I believe that much of the volumetric flow rate of the exhaust stream should still be exiting the baghouse vent vertically according to the schematic diagram you sent. I ran it by Kevin too, and a reasonable (I didn't say absolutely accurate) approach may be to model this source with an equivalent effective diameter based on the unblocked cross sectional area of the vent. The volumetric flow rate of the blower system could be used to establish the exit velocity.

If there isn't an inverted cone or flow straighteners beneath that weather cover it would affect the velocity profile in the exhaust stream, and you could apply a fudge factor to reduce the vertical exit velocity (and thus, also the exhaust flow rate), but what that factor would be would only be a guess. I'll leave it up to you if you want to apply an exit velocity effectiveness factor.

Chris, I am going to be out of the office until next Monday at a training workshop, so if anything else comes up, you can contact Kevin Schilling, or wait until I return on Monday.

Take care and have a great week.

Darrin

Attachment B

Model Predicted Impact Calculations For Pollutants Modeled With Normalized 1 lb/hr Emission Rate

TABLE 5
Dryer Toxic Air Pollutant Information
North Idaho Energy Logs, Moyie Springs, Idaho

Non-Carcinogenic Toxic Air Pollutants	Emission Factors		Wood Potential Emissions (lb/hr)	NG Current Permitted Emissions (lb/hr)	Increase In Emissions (lb/hr)	Screening Level (EL) (lb/hr)	Modeling Required? Y or N
	Factor	Units					
Acetone	8.40E-02	lb/ODT	6.72E-01		6.72E-01	119	NO
Acrolein	4.00E-03	lb/MMBtu	1.20E-01		1.20E-01	0.017	YES
Antimony	7.90E-06	lb/MMBtu	2.37E-04		2.37E-04	0.033	NO
Barium	1.70E-04	lb/MMBtu	5.10E-03		5.10E-03	0.033	NO
2-Butanone (MEK)	5.40E-06	lb/MMBtu	1.62E-04		1.62E-04	39.3	NO
Carbon Disulfide	1.80E-05	lb/ODT	1.44E-04		1.44E-04	2	NO
Chlorine	7.90E-04	lb/MMBtu	2.37E-02		2.37E-02	0.2	NO
Chlorobenzene	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	23.3	NO
2-Chlorophenol	2.40E-08	lb/MMBtu	7.20E-07		7.20E-07	0.033	NO
Chromium	2.10E-05	lb/MMBtu	6.30E-04		6.30E-04	0.033	NO
Cobalt	6.50E-06	lb/MMBtu	1.95E-04		1.95E-04	0.0033	NO
Copper	4.90E-05	lb/MMBtu	1.47E-03		1.47E-03	0.013	NO
Crotonaldehyde	9.90E-06	lb/MMBtu	2.97E-04		2.97E-04	0.38	NO
Cumene	6.90E-05	lb/ODT	5.52E-04		5.52E-04	16.3	NO
Dibutyl Phthalate	2.30E-05	lb/ODT	1.84E-04		1.84E-04	0.333	NO
1,2-Dichloropropane	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	23.133	NO
Ethylbenzene	3.10E-05	lb/MMBtu	9.30E-04		9.30E-04	29	NO
Fluorene	3.40E-06	lb/MMBtu	1.02E-04		1.02E-04	0.133	NO
Hexane	2.60E-05	lb/ODT	2.08E-04		2.08E-04	12	NO
Hydrogen Chloride	1.90E-02	lb/MMBtu	5.70E-01		5.70E-01	0.05	YES
Hydroquinone	6.00E-05	lb/ODT	4.80E-04		4.80E-04	0.133	NO
Iron	9.90E-04	lb/MMBtu	2.97E-02		2.97E-02	0.333	NO
Manganese	1.60E-03	lb/MMBtu	4.80E-02		4.80E-02	0.067	NO
Mercury	3.50E-06	lb/MMBtu	1.05E-04		1.05E-04	0.001	NO
Methanol	1.40E-02	lb/ODT	1.12E-01	5.84E-01	-4.72E-01	17.3	NO
Methyl Chloroform (1,1,1 Trichloroethane)	3.10E-05	lb/MMBtu	9.30E-04		9.30E-04	127	NO
Methyl Ethyl Ketone	4.90E-03	lb/ODT	3.92E-02		3.92E-02	39.3	NO
Methyl Isobutyl Ketone	2.40E-03	lb/ODT	1.92E-02		1.92E-02	0.01	YES
Molybdenum	2.10E-06	lb/MMBtu	6.30E-05		6.30E-05	0.33	NO
Napthalene	9.70E-05	lb/MMBtu	2.91E-03		2.91E-03	3.33	NO
Pentachlorophenol	5.10E-08	lb/MMBtu	1.53E-06		1.53E-06	0.033	NO
Phenol	6.60E-03	lb/ODT	5.28E-02		5.28E-02	1.27	NO
Phosphorous	2.70E-05	lb/MMBtu	8.10E-04		8.10E-04	0.007	NO
Propionaldehyde	3.20E-03	lb/ODT	2.56E-02		2.56E-02	0.0287	NO
Selenium	2.80E-06	lb/MMBtu	8.40E-05		8.40E-05	0.013	NO
Silver	1.70E-03	lb/MMBtu	5.10E-02		5.10E-02	0.001	YES
Styrene	1.90E-03	lb/MMBtu	5.70E-02		5.70E-02	6.67	NO
Tin	2.30E-05	lb/MMBtu	6.90E-04		6.90E-04	0.007	NO
Toluene	9.20E-04	lb/MMBtu	2.76E-02		2.76E-02	25	NO
Valeraldehyde	1.60E-03	lb/ODT	1.28E-02		1.28E-02	11.7	NO
Vanadium	9.80E-07	lb/MMBtu	2.94E-05		2.94E-05	0.003	NO
m-,p-Xylene	5.50E-04	lb/ODT	4.40E-03		4.40E-03	29	NO
Yttrium	3.00E-07	lb/MMBtu	9.00E-06		9.00E-06	0.067	NO
Zinc	4.20E-04	lb/MMBtu	1.26E-02		1.26E-02	0.067	NO

TABLE 5 (cont.)
Dryer Toxic Air Pollutant Information
North Idaho Energy Logs, Moyle Springs, Idaho

Carcinogenic Toxic Air Pollutants	Emission Factors		Wood Potential Emissions (lb/hr)	NG Current Permitted Emissions (lb/hr)	Increase In Emissions (lb/hr)	Screening Level (EL) (lb/hr)	Modeling Required? Y or N
	Factor	Units					
Acetaldehyde	1.30E-02	lb/ODT	1.04E-01		1.04E-01	3.00E-03	YES
Arsenic	2.20E-05	lb/MMBtu	6.60E-04		6.60E-04	1.50E-06	YES
Benzene	4.20E-03	lb/MMBtu	1.26E-01		1.26E-01	8.00E-04	YES
Benzo(a)pyrene	2.60E-06	lb/MMBtu	7.80E-05		7.80E-05	2.00E-06	YES
Beryllium	1.10E-06	lb/MMBtu	3.30E-05		3.30E-05	2.80E-05	YES
Bis(2-ethylhexyl)phthalate	3.20E-04	lb/ODT	2.56E-03		2.56E-03	2.80E-02	NO
Cadmium	4.10E-06	lb/MMBtu	1.23E-04		1.23E-04	3.70E-06	YES
Carbon Tetrachloride	4.50E-05	lb/MMBtu	1.35E-03		1.35E-03	4.40E-04	YES
Chloroform	2.80E-05	lb/MMBtu	8.40E-04		8.40E-04	2.80E-04	YES
Chromium VI	3.50E-06	lb/MMBtu	1.05E-04		1.05E-04	5.60E-07	YES
1,2-Dichloroethane	2.90E-05	lb/MMBtu	8.70E-04		8.70E-04	2.50E-04	YES
Dichloromethane	2.90E-04	lb/MMBtu	8.70E-03		8.70E-03	1.60E-03	YES
Dioxins and Furans (TEQ)	2.32E-09	lb/MMBtu	6.95E-08		6.95E-08	1.50E-10	YES
Heptachlorodibenzo-p-dioxins (0.010)	2.00E-09	lb/MMBtu	6.00E-10		6.00E-10	N/A	N/A
Heptachlorodibenzo-p-furans (0.010)	2.40E-10	lb/MMBtu	7.20E-11		7.20E-11	N/A	N/A
Hexachlorodibenzo-p-dioxins (0.100)	1.29E-08	lb/MMBtu	3.87E-08		3.87E-08	N/A	N/A
Hexachlorodibenzo-p-furans (0.100)	2.70E-10	lb/MMBtu	8.10E-10		8.10E-10	N/A	N/A
Octachlorodibenzo-p-dioxins (0.001)	1.10E-09	lb/MMBtu	3.30E-11		3.30E-11	N/A	N/A
Octachlorodibenzo-p-furans (0.001)	8.80E-11	lb/MMBtu	2.64E-12		2.64E-12	N/A	N/A
Pentachlorodibenzo-p-dioxins (0.500)	1.50E-09	lb/MMBtu	2.25E-08		2.25E-08	N/A	N/A
Pentachlorodibenzo-p-furans (0.500)	4.20E-10	lb/MMBtu	6.30E-09		6.30E-09	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxins (1.000)	8.60E-12	lb/MMBtu	2.58E-10		2.58E-10	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-furans (0.100)	9.00E-11	lb/MMBtu	2.70E-10		2.70E-10	N/A	N/A
Formaldehyde	2.50E-02	lb/ODT	2.00E-01	6.94E-02	1.31E-01	5.10E-04	YES
Methylene Chloride	6.30E-04	lb/ODT	5.04E-03		5.04E-03	1.60E-03	YES
Nickel	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	2.70E-05	YES
Polyaromatic Hydrocarbons (PAH or POM)	2.94E-06	lb/MMBtu	8.81E-05		8.81E-05	2.00E-06	YES
Benzo(a)anthracene	6.50E-08	lb/MMBtu	1.95E-06		1.95E-06	N/A	N/A
Benzo(b)fluoranthene	1.00E-07	lb/MMBtu	3.00E-06		3.00E-06	N/A	N/A
Benzo(k)fluoranthene	3.60E-08	lb/MMBtu	1.08E-06		1.08E-06	N/A	N/A
Chrysene	3.80E-08	lb/MMBtu	1.14E-06		1.14E-06	N/A	N/A
Dibenzo(a,h)anthracene	9.10E-09	lb/MMBtu	2.73E-07		2.73E-07	N/A	N/A
Indeno(1,2,3-cd)pyrene	8.70E-08	lb/MMBtu	2.61E-06		2.61E-06	N/A	N/A
Benzo(a)pyrene	2.60E-06	lb/MMBtu	7.80E-05		7.80E-05	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxin	8.60E-12	lb/MMBtu	2.58E-10		2.58E-10	1.50E-10	YES
2,4,6-Trichlorophenol	2.20E-08	lb/MMBtu	6.60E-07		6.60E-07	1.20E-03	NO

(TEQ) Toxicity Equivalent Applied to Emission Rate

APPENDIX E

MANUFACTURER INFORMATION

Pneu-Aire® Design Features Provide Operational Savings!

Closed loop system. All material ends up at its original destination, the cyclone.

Dust laden air from cyclone enters Pneu-Aire here.

Emergency by-pass. Isolation damper closes when abort gate opens.

Abort gate opens to atmosphere. Allows for continued plant production during servicing or maintenance.

Bag hanger assembly. Rugged, unique and simple.

Clean air discharge. Weather protected discharge opening.

Cleaning cycle. Bags are cleaned by low pressure reverse air flow while system is operating.

Pressure gauge and switch. Instant read out plus electrical contacts for use in alarm or abort circuits.

Purge fan. Produces flow of air that cleans the bags.

Hinged and latched doors for easy access.

Vacuum action through scavenging orifice keeps floor clean.

Manifold drive. 1/4 H.P., 3 phase gearhead motor.

Filtering cycle, continuous filtration by high tensile fabric. Dust is collected inside bags, this means a clean baghouse for easy inspection during operation.

All drive components are standard industrial power transmission items.

On the ground, the Pneu-Aire mounts on its own base.

Structurally superior but lightweight design makes the Pneu-Aire ideal for roof mounting

Rotating purge manifold. A 1/4 H.P. gearhead motor continuously rotates the cleaning manifold. Bearings, motor and chain drive are on the clean air side.

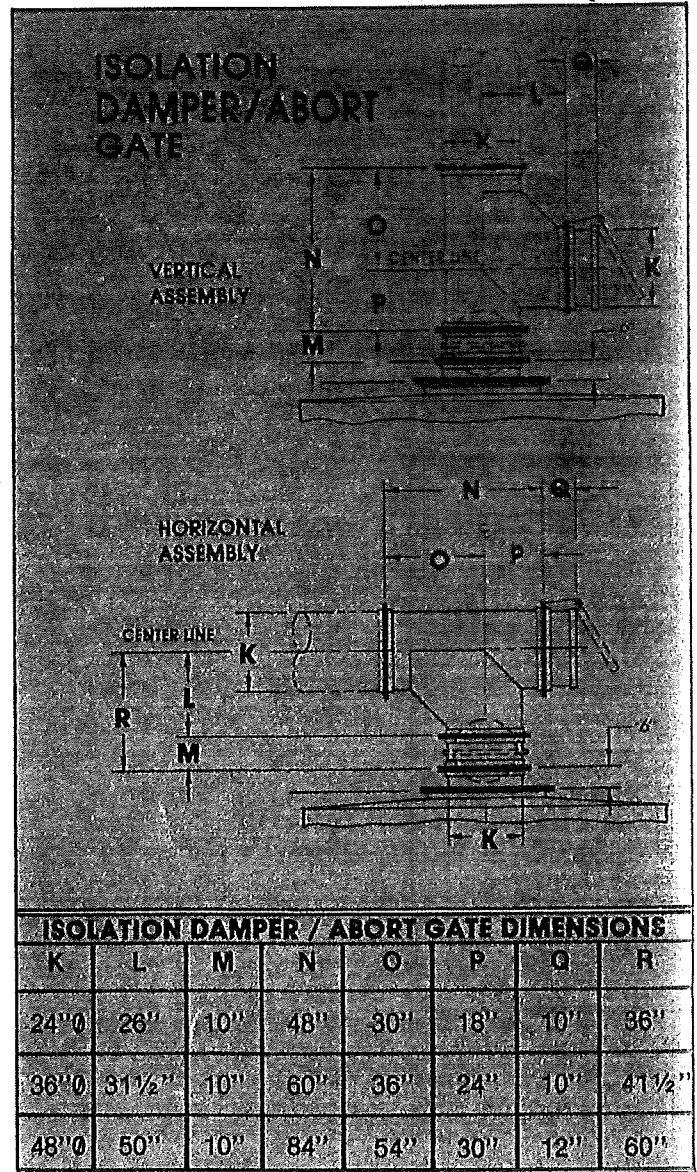
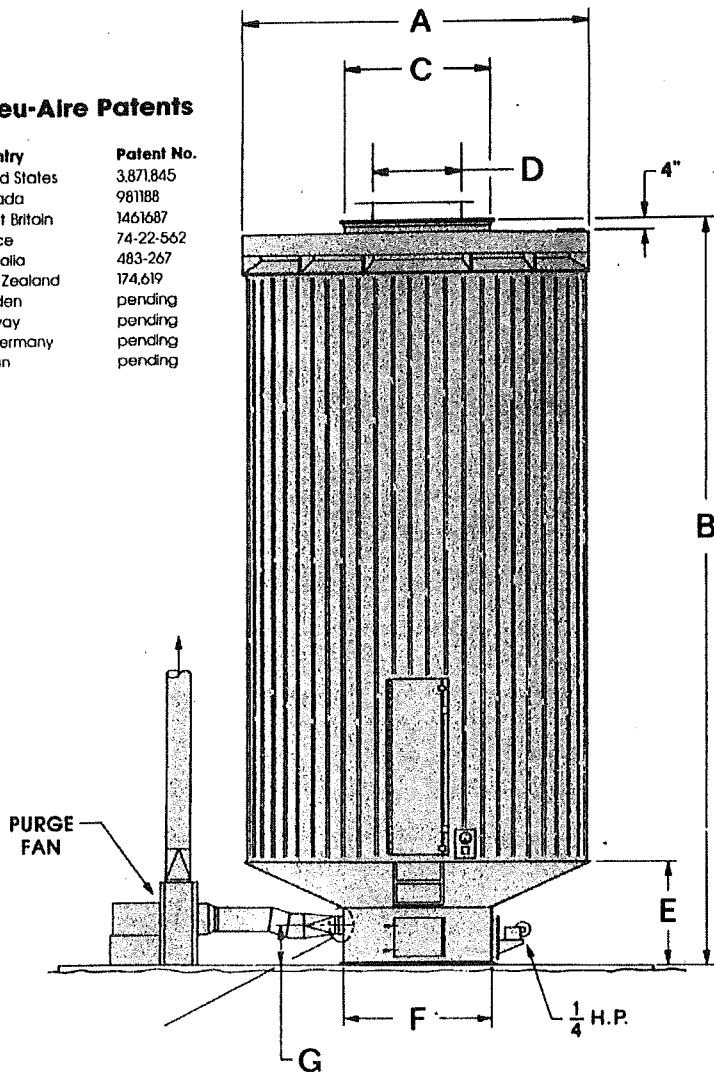
Clar-Tex® cageless bags mean no cage abrasion and easy servicing. Because dust is collected on the inside of the bags, the Pneu-Aire filter enclosure is clean.

Clarke's
SHEET METAL INC.

Aire® Filter Specifications

Pneu-Aire Patents

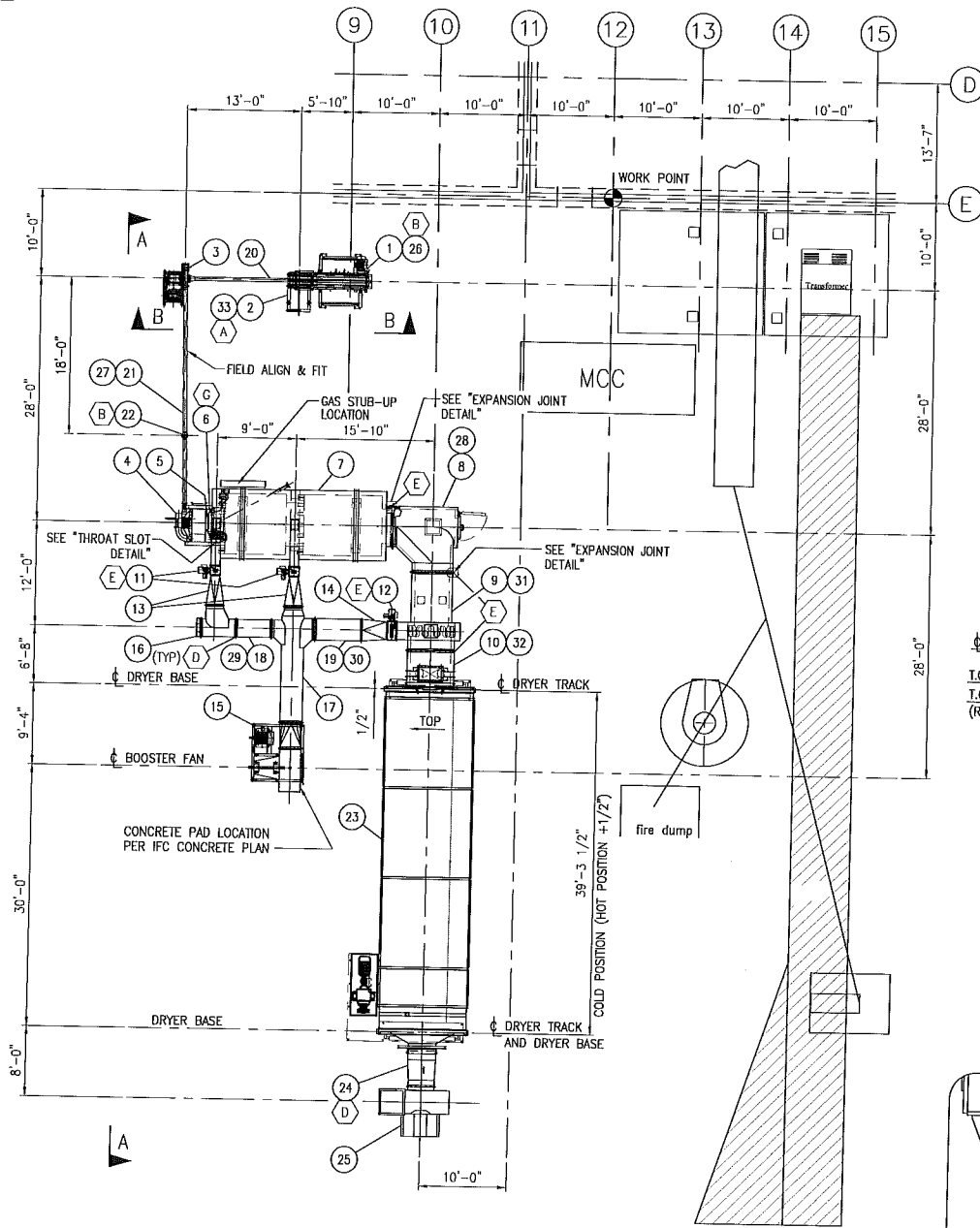
Country	Patent No.
United States	3,871,845
Canada	981188
Great Britain	1461687
France	74-22-562
Australia	483-267
New Zealand	174,619
Sweden	pending
Norway	pending
W. Germany	pending
Japan	pending



*Also available in 60" diameter. (Consult factory)

MODEL	Effect. Cloth. Area Sq. Ft.	Shipping Weight	No. of Bags	Length of Bags	DIMENSIONS						
					A	B	C	D	E	F	G
10-10	358	4,000 lbs.	10	10'	7' - 4"	14' - 6"	36" ID	24" OD	32 1/2"	36" ID	12"
10-15	528	4,200 lbs.	10	15'	7' - 4"	19' - 0"	36" ID	24" OD	32 1/2"	36" ID	12"
15-15	822	4,600 lbs.	15	15'	9' - 4 1/2"	19' - 9 1/2"	60" ID	24" OD	42"	60" ID	13"
15-20	1144	5,000 lbs.	20	20'	9' - 4 1/2"	25' - 3 1/2"	60" ID	24" OD	42"	60" ID	13"
15-20G1	1658	5,300 lbs.	15	20'	9' - 4 1/2"	25' - 3 1/2"	60" ID	36" OD	42"	60" ID	13"
40-15	1915	6,300 lbs.	40	15'	11' - 8"	19' - 9 1/2"	60" ID	36" OD	42"	60" ID	13"
40-20	2668	7,000 lbs.	40	20'	11' - 8"	25' - 3 1/2"	60" ID	36" OD	42"	60" ID	13"
40-20G1	3374	7,500 lbs.	40	20'	11' - 8"	25' - 3 1/2"	60" ID	48" OD	42"	60" ID	13"
40-20G2	3815	7,650 lbs.	40	20'	11' - 8"	25' - 3 1/2"	60" ID	48" OD	42"	60" ID	13"
60-15	3447	8,700 lbs.	60	15'	15' - 9"	21' - 5 1/2"	60" ID	48" OD	56"	60" ID	14 1/2"
60-20	4801	10,000 lbs.	60	20'	15' - 9"	26' - 11 1/2"	60" ID	48" OD	56"	60" ID	14 1/2"
60-20G1	6040	10,200 lbs.	60	20'	15' - 9"	26' - 11 1/2"	60" ID	60" OD	56"	60" ID	14 1/2"
60-20G2	6750	10,350 lbs.	60	20'	15' - 9"	26' - 11 1/2"	60" ID	60" OD	56"	60" ID	14 1/2"
60-20G3	7187	10,600 lbs.	60	20'	15' - 9"	26' - 11 1/2"	60" ID	60" OD	56"	60" ID	14 1/2"

Note: * Indicates "Gemini" series filter SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

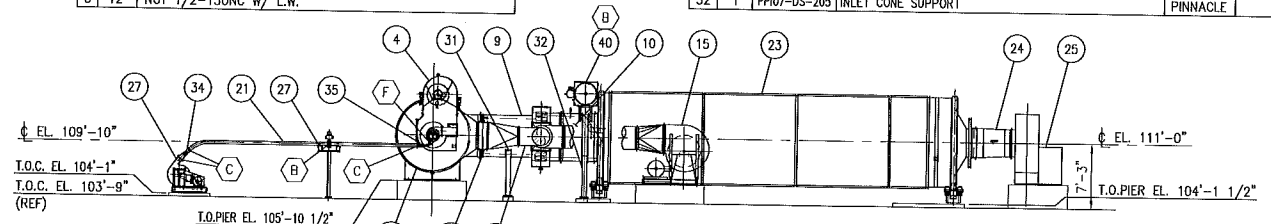


MATERIAL LIST						MATERIAL LIST					
ITEM	QTY.	DWG NO.	DESCRIPTION	REMARKS	WT.	ITEM	QTY.	DWG NO.	DESCRIPTION	REMARKS	WT.
33	1	PPI07-DS-207	HAMMERMILL SUPPORT	PINNACLE		1	1	D-SLG-F-108	3 AUGER 40 CU. FT. FUEL BIN ASSY	SOLAGEN	
34	1	PPI07-DM-205	TRANSPORT FAN OUTLET TRANSITION	PINNACLE		2	1		HAMMER MILL	PINNACLE	
35	1	PPI07-DM-205	WOOD SCROLL INLET TRANSITION	PINNACLE		3	1	D-SLG-T-014	FUEL TRANSPORT FAN ASSY	SOLAGEN	
37	1	PPI07-DM-205	HAMMERMILL OUTLET TRANSITION	PINNACLE		4	1	D-NWH-20	20MM BTU GAS-WOOD BURNER ASSY	SOLAGEN	
38	1	PPI07-DM-206	HAMMERMILL BOTTOM PAN	PINNACLE		5	1	D-ETK-U-009	GAS RING	SOLAGEN	
39	1		FUEL BIN TO HAMMERMILL TRANSITION	PINNACLE		6	1	D-ETK-U-010	BURNER THROAT	SOLAGEN	
40	1		AIR LOCK	PINNACLE		7	1	D-SLG-A-007	8" AIR HEATER ASSY	SOLAGEN	

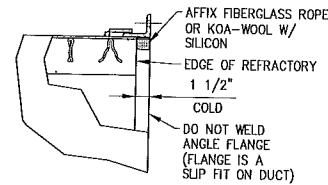
NOTES:

- CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO INSTALLATION. SUITABILITY OF FINAL FIT UP OF ALL COMPONENTS IS THE RESPONSIBILITY OF THE CUSTOMER AND THE INSTALLATION CONTRACTOR.
- ALL DUCTING IS DESIGNED TO BE FIELD TRIMMED IN EACH DIRECTION TO ASSURE A BEST FIT INSTALLATION. REMOVE TACK WELD AND TRIM THEN ADJUST FLANGE ORIENTATION AND FULLY WELD.
- ALL REFRACTORY LINED DUCTING IS DESIGNED TO BE FIELD TRIMMED PRIOR TO FIELD REFRACTORY INSTALLATION.
- (X) INDICATES HARDWARE, SEE HARDWARE LIST BELOW.
- APPLY SILICON TO DUCT FLANGES AT ASSEMBLY.
- PAINT SPECIFICATIONS:
AS PER PINNACLE PELLET SPECIFICATIONS.
ALL FIELD WELDS TO BE TOUCHED-UP AFTER INSTALLATION WITH SAME.

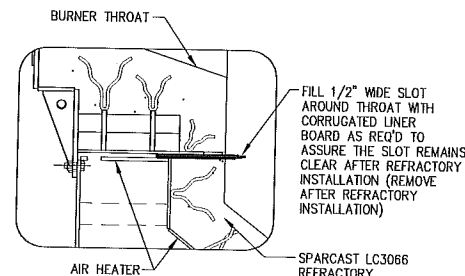
HARDWARE LIST	
(X) QTY	DESCRIPTION
A 7	7/8-9UNC x 2 1/2" LG. W/F.W., L.W. AND NUT
B 40	5/8-11UNC x 2" LG. W/F.W., L.W. AND NUT
C 96	3/8-16UNC x 1 1/2" LG. W/F.W., L.W. AND NUT
D 134	3/8-16UNC x 1" LG. W/F.W., L.W. AND NUT
E 216	1/2-13UNC x 1 1/2" LG. W/F.W., L.W. AND NUT
F 10	1/4-20UNC x 1" LG. W/F.W., L.W. AND NUT
G 12	NUT 1/2-13UNC W/ L.W.



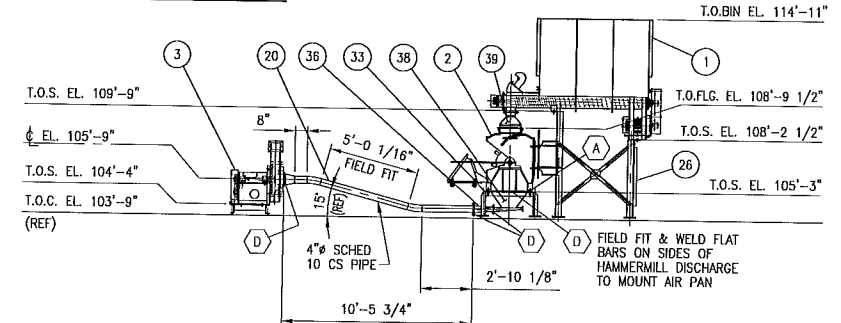
ELEVATION A-A



EXPANSION JOINT DETAIL
(TYP 2 PLC'S)
SCALE: NONE



THROAT SLOT DETAIL
SCALE: NONE



ELEVATION B-B
SCALE: 1/4" = 1'-0"

TOLERANCES	0	ISSUED FOR CONSTRUCTION		11/14/07	DDA	PMZ
	REV.	DESCRIPTION		DATE	DRAWN	CHECKED
FRACTIONS: ± 1/16	REVISIONS					
DECIMALS:	Property of SolaGen Inc. This drawing contains proprietary information that is the property of SolaGen Inc. It is lent and will be returned upon request. The assignee named below upon accepting delivery of this drawing assumes responsibility for the confidentiality of the information contained herein. It shall not be copied, in whole or in part for any reason whatsoever without written permission.					
.0 ± .10	DRAWN	CHECKED	APPROVED	FILE NAME		
.00 ± .03	PMZ	FMS		PPI07-08, PINNACLE PELLET		
.000 ± .01	SolaGen Inc.					
ANGULARITY: ± 1'	Deer Island, Oregon			TITLE		
DATE	07/18/07	PHONE: 503-368-4210			WILLIAMS LAKE DRYER SYSTEM GENERAL ARRANGEMENT	
SCALE	1/8" = 1'-0"	DRAWING NO.		REV.		
		PPI 07-DM-101		0		
				1		



JOE

SHEET v

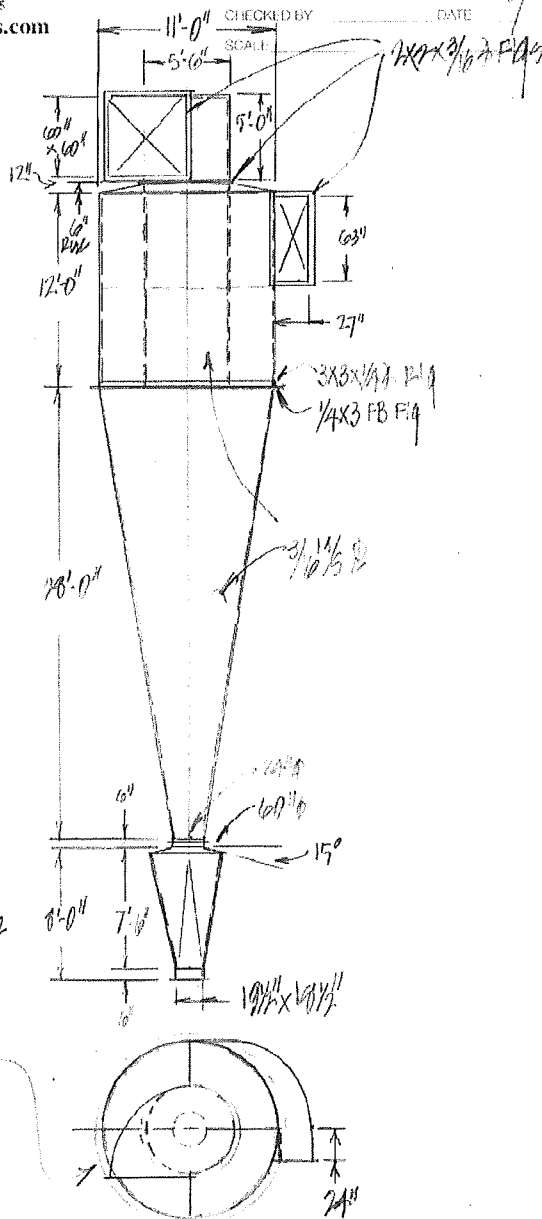
Of

CALCULATED BY

DAIF

CHECKED BY

DATE _____



Notes:

1-986#1-body clean

7100' Lb/Inch $\times 6'-0" \times \frac{3}{16} \frac{1}{2}$

4-3/4" black rods.

Correct hand on pull hand